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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,200	10/29/2001	Teresa Lechner-Fish	1787-10100	9865

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EXAMINER

CYGAN, MICHAEL T

ART UNIT PAPER NUMBER

2855

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,200

Applicant(s)

LECHNER-FISH, TERESA

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-18, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. In response to Applicant's submission of 02 October 2003 which is responsive to the Final Rejection of the last Office action, the finality of that action is withdrawn.
2. The indicated allowability of claims 13 (now 1) and 19 (now 18) is withdrawn in view of the newly discovered US 4,772,296. Rejections based on the newly cited reference(s) follow.

Claim Objections

3. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Where claim 1 recites a "second temperature about five to ten degrees Celsius higher", claim 6 recites "a second temperature at least five degrees Celsius above", thus failing to further limit claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Potts (US 4,772,296). Potts discloses the claimed invention, a method to analyze a sample comprising heating a carrier gas stream for a gas chromatograph to a temperature about 10 degrees higher than a column temperature and measuring constituent concentrations for the sample; a backpressure restrictor [36] is placed upstream of the column. See column 6 line 9+, column 7 lines 44-52, and column 8 lines 55+.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4, 6-9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts (US 4,772,296) in view of applicant's admitted prior art (Figure 4). Potts teaches a gas chromatograph [4]

comprising separation columns [42,44] heated (column 6 lines 50-53) to a desired temperature, a second heater (column 6 lines 50-53) for heating a carrier stream to a desired temperature which is about ten degrees higher than the column temperature (column 6 lines 29-49), a means [56] for cooling the carrier gas stream to a third desired temperature, wherein each of the components is contained within the gas chromatograph housing [4]. Back pressure restriction means [36] are provided upstream of the column and the point of mixing with the feedstream (Figure 1).

Potts teaches the claimed invention except for the use of a valve switch connected upstream of the column and downstream of both sample and carrier gas sources. Applicant admits the use of a valve switch connected upstream of the column and downstream of both sample and carrier gas sources (Figure 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a valve switch connected upstream of the column and downstream of both sample and carrier gas sources as taught by applicant's admitted prior art in the invention taught by Potts to form the sample introduction valve, since both Potts and applicant's admitted prior art use a valve switch to cause the formation of a sample plug for compositional analysis, and the valve of Figure 4 provides a compact plug for analysis which does not suffer the spreading caused by two concurrently interacting gas flows (as in the junction of Potts' Figure 1).

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potts (US 4,772,296) as applied to claim 18, further in view of Karas (US 4,095,455). Potts teaches the claimed invention except for a backpressure regulator downstream of a capillary column. Karas teaches the use of a backpressure regulator downstream of a capillary column in a gas chromatograph having a pneumatic detector (Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pneumatic detector comprising a backpressure regulator downstream of a capillary column as taught by Karas in the invention of Potts to regulate the pressure in the device, since Karas teaches that the pneumatic detector does not have the drawbacks (cost, inadequate reliability, potential danger) of the detection device of Potts (thermal conductivity detector); see Karas column 1, lines 30+.

7. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts (US 4,772,296) in view of applicant's admitted prior art as applied to claim 1, further in view of Karas (US 4,095,455). Potts teaches the claimed invention except for a backpressure regulator downstream of a capillary column. Karas teaches the use of a backpressure regulator downstream of a capillary column in a gas chromatograph having a pneumatic detector (Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pneumatic detector comprising a backpressure regulator downstream of a capillary column as taught by Karas in the invention of Potts to regulate the pressure in the device, since Karas teaches that the pneumatic detector does not have the drawbacks (cost, inadequate reliability, potential danger) of the detection device of Potts (thermal conductivity detector); see Karas column 1, lines 30+.

8. Claims 3, 5, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts (US 4,772,296) in view of applicant's admitted prior art as applied to claim 1, further in view of Sacks (US 5,205,845). Potts teaches the claimed invention, including additional valves [51,53] except for the use of capillary tubing as the backpressure restrictor (i.e., 36).

Sacks teaches the use of capillary tubes as backpressure regulators for a carrier gas stream in a gas chromatograph (column 5 lines 3-7). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use capillary tubing as taught by Sacks as the backpressure restrictor in the invention of Potts to form the backpressure restrictor, since such tubing has no moving parts and would be more accurate in the restriction and less susceptible to failure.

9. Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potts (US 4,772,296) in view of applicant's admitted prior art as applied to claim 1, further in view of Sides (US 4,805,441). Potts teaches the claimed invention except for the second heater heating the carrier stream to a series of predetermined temperatures according to a temperature program. Sides teaches temperature control of a chromatographic column in accordance with programmable computer control or the column temperature and sample/carrier gas inlet temperature (abstract, Figure 1, Figure 4).

It would have been obvious to heat the column to a series of predetermined temperatures according to a temperature program in combination with computer control of both column and inlet gas temperatures as taught by Sides in the invention taught by Potts to perform separation, since Sides teaches that temperature control on the column allows sharp chromatographic peaks to be obtained (see abstract).

Since Potts teaches maintaining the inlet gas temperatures at a constant temperature relative to the column temperature, the use of such a column temperature program along with computer control of both column and inlet gas temperatures would result in the claimed step of the second heater heating the carrier stream to a series of predetermined temperatures according to a temperature program.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents disclose temperature control of carrier gases in gas chromatography: Munari (US 5,252,109), Grindstaff (US 5,083,450), Clinton (US 4,133,640), Jennings (US 4,035,168), and Deans (US 3,778,975).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is 703-305-0846. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Michael Cygan
Examiner
Art Unit 2855